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AGREEMENT

CONCERNING THE ADOPTION OF UNIFORM CONDITIONS OF APPROVAL AND RECIPROCAL RECOGNITION OF APPROVAL FOR MOTOR VEHICLE EQUIPMENT AND PARTS

done at Geneva on 20 March 1958

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UNIFORM PROVISIONS CONCERNING THE APPROVAL OF SIDE-MARKER LAMPS FOR MOTOR VEHICLES AND THEIR TRAILERS

UNITED NATIONS

Regulation No. 91

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF SIDE-MARKER LAMPS FOR MOTOR VEHICLES AND THEIR TRAILERS

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Regulation No. 91

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF SIDE-MARKER LAMPS FOR MOTOR VEHICLES AND THEIR TRAILERS

1. SCOPE

This Regulation applies to the approval of side-marker lamps used to increase the visibility of the sides of road vehicles.

2. DEFINITIONS

2.1. The definitions given in Regulation No. 48 and the series of amendments in force at the time of application for type approval shall apply to this Regulation.

2.2. "Side-marker lamp" means a lamp used to indicate the presence of the vehicle when viewed from the side;

2.3. "Type," in relation to side-marker lamps, means side-marker lamps which do not differ in such essential respects as:

2.3.1. the trade name or mark;

2.3.2. the characteristics of the optical system (level of intensity, light distribution angles, type of filament lamp, etc.).

3. APPLICATION FOR APPROVAL

3.1. The application for approval shall be submitted by the holder of the trade name or mark or by his duly accredited representative. It shall specify:

3.1.1. whether the side-marker lamp is intended to emit amber or red light.

3.2. For each type of side-marker lamp the application shall be accompanied by:

3.2.1. Drawings in triplicate, sufficiently detailed to permit identification of the type of lamp and showing geometrically in what position it is to be mounted on the vehicle; the direction of observation to be taken as the axis of reference in the tests (horizontal angle H = 0°, vertical angle V = 0°); the point to be taken as the centre of reference in the said tests; the vertical and horizontal tangents to the illuminating surface and their distances from the centre of reference of the lamp. The drawings shall show the position intended for the approval number and the additional symbols in relation to the circle of the approval mark.

3.2.2. A brief technical specification stating, in particular, with the exception of lamps with non-replaceable light sources, the category or categories of filament lamps prescribed; this filament lamp category shall be one of those contained in Regulation No. 37.

3.2.3. Two samples; if the application is made for side-marker lamps which are not identical but are symmetrical and suitable for mounting one on the left and one on the right side of the vehicle and/or, alternatively, one towards the front and one towards the rear, the two samples submitted may be identical and be suitable for mounting only on the right or only on the left side of the vehicle and/or, alternatively, only towards the front or only towards the rear.

3.3. The competent authority shall verify the existence of satisfactory arrangements for ensuring effective control of the conformity of production before type approval is granted.

4. MARKINGS

4.1. Side-marker lamps submitted for approval:

4.2. Must bear the trade name or mark of the applicant; this marking must be clearly legible and indelible;

4.3. Must bear a clearly legible and indelible marking indicating the category or categories of filament lamps prescribed; this is not valid for lamps with non-replaceable light sources;

4.4. Must comprise a space of sufficient size for the approval marking and the additional symbols prescribed in paragraph 5.4 below; this space shall be shown in the drawings mentioned in paragraph 3.2.1 above;

4.5. In the case of lamps with non-replaceable light sources, must bear the marking of rated voltage and rated wattage.

5. APPROVAL

5.1. If the two side-marker lamps submitted for approval pursuant to paragraph 3.2.3 above satisfy the provisions of this Regulation, approval shall be granted.

5.2. An approval number shall be assigned to each type approved. Its first two digits shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign this number to another type of side-marker lamp covered by this Regulation except in the case of the extension of the approval to a side-marker lamp differing only in the colour of the light emitted.

5.3. Notice of approval or of extension or of refusal of approval of a type of side-marker lamp shall be communicated to the Parties to the Agreement which apply this Regulation, by means of a form conforming to the model in annex 2 to this Regulation.

5.4. Every side-marker lamp conforming to a type approved under this Regulation shall bear, in the space referred to in paragraph 4.4 above, and in addition to the markings prescribed in paragraphs 4.2 and 4.3 or 4.4 respectively:

5.4.1. an international approval mark consisting of:

5.4.1.1. a circle surrounding the letter "E" followed by the distinguishing number of the Country which has granted the approval, 1/ and

5.4.1.2. the approval number prescribed in paragraph 5.2 above.

5.4.2. The additional symbol "SM1" or "SM2."

5.4.3. The two digits of the approval number which indicate the series of amendments in force on the date of issue of the approval may be marked close to the above additional symbol.

5.5. The marks and symbols mentioned in paragraphs 5.4.1 to 5.4.3 above shall be indelible and clearly legible even when the device is mounted on the vehicle.

5.6. Where grouped, combined or reciprocally incorporated lamps have been found to comply with the requirements of several Regulations, a single international approval mark may be applied provided that such lamps are not grouped, combined or reciprocally incorporated with a lamp or lamps not satisfying any one of those Regulations.

1/ 1 for Germany, 2 for France, 3 for Italy, 4 for the Netherlands, 5 for Sweden, 6 for Belgium, 7 for Hungary, 8 for the Czech Republic, 9 for Spain, 10 for Yugoslavia, 11 for the United Kingdom, 12 for Austria, 13 for Luxembourg, 14 for Switzerland, 15 (vacant), 16 for Norway, 17 for Finland, 18 for Denmark, 19 for Romania, 20 for Poland, 21 for Portugal, 22 for the Russian Federation, 23 for Greece, 24, 25 (vacant) and 26 for Slovenia. Subsequent numbers shall be assigned to other countries in the chronological order in which they ratify the Agreement Concerning the Adoption of Uniform Conditions of Approval and Reciprocal Recognition of Approval for Motor Vehicle Equipment and Parts, or in which they accede to that Agreement, and the numbers thus assigned shall be communicated by the Secretary-General of the United Nations to the Contracting Parties to the Agreement.

5.6.1. The approval mark shall consist of a circle surrounding the letter "E" followed by the distinguishing number of the country which has granted the approval; an approval mark may be located anywhere on the grouped, combined or reciprocally incorporated lamps provided that:

5.6.1.1. It is visible after their installation;

5.6.1.2. No part of the grouped, combined or reciprocally incorporated lamps that transmits light can be removed without at the same time removing the approval mark.

5.7. The identification symbol for each lamp appropriate to each Regulation under which approval has been granted, together with the corresponding series of amendments incorporating the most recent major technical amendments to the Regulation at the time of issue of approval shall be marked;

5.7.1. either on the appropriate light-emitting surface, or

5.7.2. in a group, in such a way that each lamp may be clearly identified (see three possible models in example 2 shown in annex 3).

5.8. The size of the components of a single approval mark shall not be less than the minimum size required for the smallest of the individual marks under which the approval was granted.

5.9. An approval number shall be assigned to each type approved. The same Contracting Party shall not assign the same number to another type of assembly covered by this Regulation.

5.10. Annex 3 to this Regulation gives examples of arrangements of approval marks for a single lamp (example 1) and for an assembly (example 2).

5.11. Lamps grouped with a type of headlamp of which the lens is also used for another type of headlamp. The provisions laid down in paragraphs 5.6 to 5.9 above are applicable.

5.11.1. However, if different types of headlamps or units of lamps including a headlamp comprise the same lens, the latter may bear the different approval marks relating to these types of headlamps or units of lamps, provided that the main body of the headlamp, even if it cannot be separated from the lens, bears the approval marks of the actual functions. If different types of headlamps comprise the same main body, the latter may bear the different approval marks.

5.11.2. Annex 3 to this Regulation gives examples of approval marks relating to lamps which are grouped with a headlamp (example 3).

6. GENERAL SPECIFICATIONS

6.1. Each side-marker lamp submitted for approval shall conform to the specifications set out in paragraphs 7 and 8 of this Regulation.

6.2. Side-marker lamps shall be so designed and made that, in normal use, despite the vibrations to which they may then be subjected, their satisfactory operation continues to be ensured and they retain the characteristics prescribed by this Regulation.

7. INTENSITY OF LIGHT EMITTED

7.1. The intensity of the light emitted by each of the two samples submitted shall be:

Side-marker lamp category		SM1	SM2
7.1.1. Minimum intensity	In the axis of reference	4.0 cd	0.6 cd
	Within the specified angular field, other than above	0.6 cd	0.6 cd
7.1.2. Maximum intensity		25.0 cd	25.0 cd
7.1.3. Angular field	Horizontal	± 45 deg.	± 30 deg.
	Vertical	± 10 deg.	± 10 deg.

7.1.4. In the case of a lamp containing more than one light source:

the lamp shall comply with the minimum intensity required when any one light source has failed;

when all light sources are illuminated the maximum intensity specified may not be exceeded.

7.2. Outside the reference axis and within the angular fields defined in the diagrams in annex 1 to this Regulation, the intensity of the light emitted by each of the two side-marker lamps supplied must:

7.2.1. In each direction corresponding to the points in the light distribution table reproduced in annex 4 to this Regulation, be not less than the product of the minimum specified in paragraph 7.1 above by the percentage specified in the said table for the direction in question;

7.2.2. In no direction within the space from which the side-marker lamp is visible, exceed the maximum specified in paragraph 7.1 above;

7.2.3. The provisions of paragraph 2.2 of annex 4 to this Regulation on local variations of intensity must be observed.

7.3. Annex 4, to which reference is made in paragraph 7.2.1 above, gives particulars of the measurement methods to be used.

8. COLOUR OF LIGHT EMITTED

8.1. The side-marker lamp must emit amber light; however it can emit red, if the rearmost side-marker lamp is grouped or combined or reciprocally incorporated with the rear position lamp, the rear end-outline marker lamp, the rear fog lamp, the stop lamp, or is grouped with or has part of the light emitting surface in common with the rear retro-reflector.

8.2. The colour of the light emitted must be within the limits of the trichromatic coordinates prescribed for the colour in question in annex 5 to this Regulation.

9. TEST PROCEDURE

9.1. Measurements shall be carried out with a colourless standard filament lamp of the type recommended for the side-marker lamp and so regulated as to produce the reference luminous flux prescribed for this type of lamp, taking into account the provisions of paragraphs 9.2 and 9.3 below.

9.2. Measurements on lamps with non-replaceable light sources shall be made at 13.5 V or 28.0 V respectively.

9.3. The photometric performance of lamps equipped with several light sources shall be checked in accordance with the provisions of annex 4.

10. MODIFICATION OF SIDE-MARKER LAMP TYPE AND EXTENSION OF APPROVAL

10.1. Any modification of a side-marker lamp type shall be notified to the administrative authority which approved the lamp. The authority may then either:

10.1.1. consider that the modifications are unlikely to have an appreciable adverse effect and that, in any case, the side-marker lamp still meets the requirements; or

10.1.2. require a further test report from the technical service responsible for conducting the tests.

10.2. Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 5.3 above to the Parties to the Agreement which apply this Regulation.

10.3. The competent authority issuing the extension of approval shall assign a series number to each communication form drawn up for such an extension and inform thereof the other Parties to the Agreement

applying this Regulation by means of a communication form conforming to the model in annex 2 to this Regulation.

11. CONFORMITY OF PRODUCTION

11.1. Any side-marker lamp approved according to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements set forth in paragraphs 7 and 8 above.

Nevertheless, in case of a side-marker lamp selected at random from series production, the intensity of the light emitted in each relevant direction shall be at least 80% of the minimum values and shall not exceed 120% of the maximum values specified in paragraph 7.1 above.

11.2. In order to verify that the requirements of paragraph 11.1 are met, suitable controls of the production shall be carried out.

11.3. The holder of the approval shall in particular:

11.3.1. ensure existence of procedures for the effective quality control of side-marker lamps, as regards all aspects relevant to compliance with the requirements set out in paragraphs 7 and 8 above,

11.3.2. have access to the control equipment necessary for checking the conformity to each approved type,

11.3.3. ensure that data of test results are recorded and that annexed documents shall remain available for a period to be determined in accordance with the administrative service,

11.3.4. analyse the results of each type of test, in order to verify and ensure the stability of the product characteristics making allowance for variation of an industrial production,

11.3.5. ensure that for each type of side-marker lamp at least the tests prescribed in this Regulation are carried out,

11.3.6. ensure that any sampling of samples or test pieces giving evidence of non-conformity with the requirements set out in paragraphs 7 and 8 above shall give rise to another sampling and another test. All the necessary steps shall be taken to re-establish the conformity of the corresponding production.

11.4. The competent authority which has granted type-approval may at any time verify the conformity control methods applicable to each production unit.

11.4.1. In every inspection, the test books and production survey records shall be presented to the visiting inspector.

11.4.2. The inspector may take samples at random which will be tested in the manufacturer's laboratory. The minimum number of samples may be determined according to the results of the manufacturer's own verification.

11.4.3. When the quality level appears unsatisfactory or when it seems necessary to verify the validity of the tests carried out in application of paragraph 11.4.2, the inspector shall select samples to be sent to the technical service which has conducted the type approval tests.

11.4.4. The competent authority may carry out any test prescribed in this Regulation.

11.4.5. The normal frequency of inspections authorized by the competent authority shall be one per two years. In the case where negative results are recorded during one of these visits, the competent authority shall ensure that all necessary steps are taken to re-establish the conformity of production as rapidly as possible.

12. PENALTIES FOR NON-CONFORMITY OF PRODUCTION

12.1. The approval granted in respect of a side-marker lamp may be withdrawn if the foregoing conditions are not satisfied.

12.2. If a Party to the Agreement applying this Regulation withdraws an approval it has previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation, by means of a communication form conforming to the model in annex 2 to this Regulation.

13. PRODUCTION DEFINITELY DISCONTINUED

If the holder of an approval completely ceases to manufacture a side-marker lamp approved in accordance with this Regulation, he shall so inform the authority which granted the approval. Upon receiving the relevant communication, that authority shall inform the other Parties to the Agreement applying this Regulation, by means of a communication form conforming to the model in annex 2 to this Regulation.

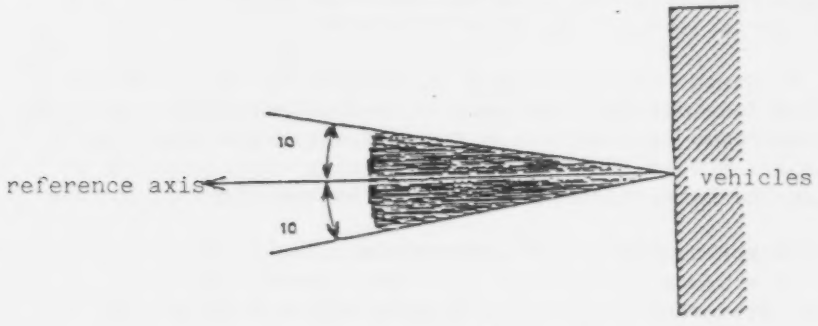
14. NAMES AND ADDRESSES OF TECHNICAL SERVICES RESPONSIBLE FOR CONDUCTING APPROVAL TESTS, AND OF ADMINISTRATIVE DEPARTMENTS

The Parties to the Agreement applying this Regulation shall communicate to the United Nations secretariat the names and addresses of the technical services responsible for conducting approval tests and of the administrative departments which grant approval and to which communication forms certifying approval or extension or refusal or withdrawal of approval, issued in other countries, are to be sent.

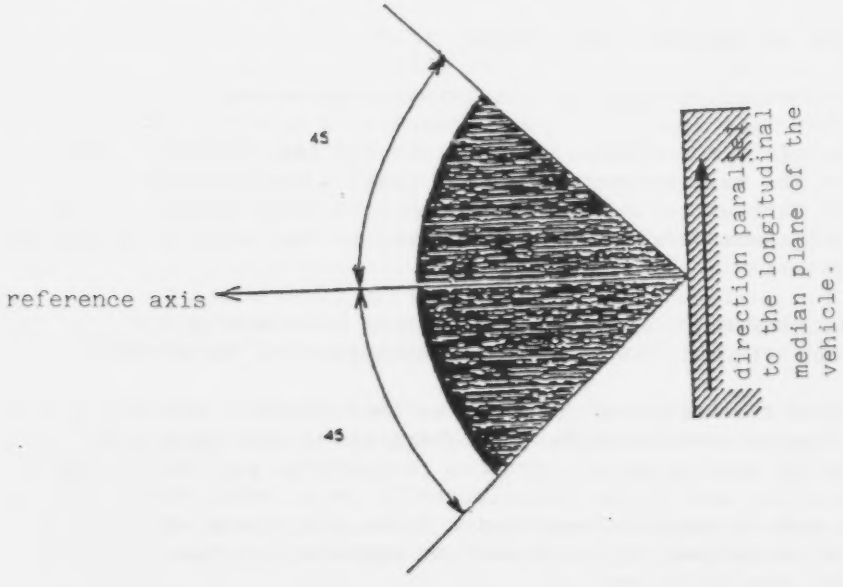
Annex 1

MINIMUM ANGLES REQUIRED FOR LIGHT DISTRIBUTION IN SPACE

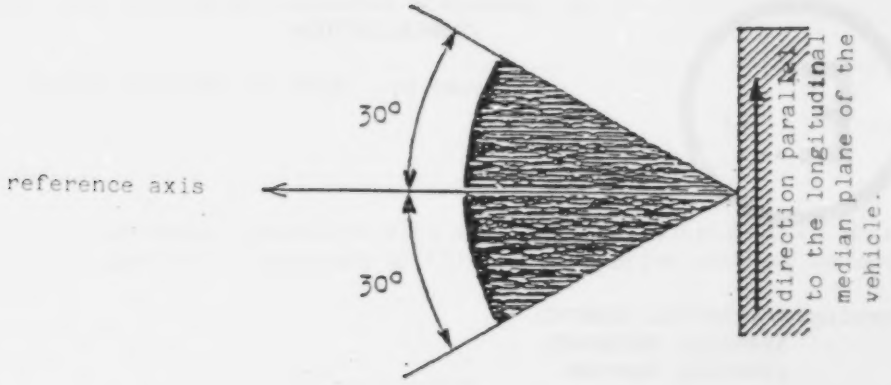
Minimum vertical angles, SM1 and SM2:



Minimum horizontal angles, SM1:



Minimum horizontal angles, SM2:



Annex 2

(Maximum format: A4 (210 x 297 mm))

COMMUNICATION

issued by: Name of administration:
.....
.....
.....

concerning: 2/ APPROVAL GRANTED
APPROVAL EXTENDED
APPROVAL REFUSED
APPROVAL WITHDRAWN
PRODUCTION DEFINITELY DISCONTINUED

of a type of side-marker lamp marked SM1/SM2 2/
pursuant to Regulation No. ...

Approval No. ... Extension No. ...

1. Trade name or mark of the side-marker lamp: .....

2. Manufacturer's name for the type of side-marker lamp: .....

3. Manufacturer's name and address: .....

4. If applicable, name and address of the manufacturer's representative:
.....

5. Submitted for approval on: .....

6. Technical service responsible for conducting approval tests: .....
.....

7. Date of test report: .....

8. Number of test report: .....

9. Concise description: 3/

Colour of light emitted: amber/red 2/
Number and category of filament lamp(s): .....

10. Position of the approval mark: .....

11. Reason(s) for extension (if applicable): .....

12. Approval granted/refused/extended/withdrawn: 2/ .....

13. Place: .....

14. Date: .....

15. Signature: .....

16. The list of documents deposited with the Administrative Service which has granted approval is annexed to this communication and may be obtained on request.

1/ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).

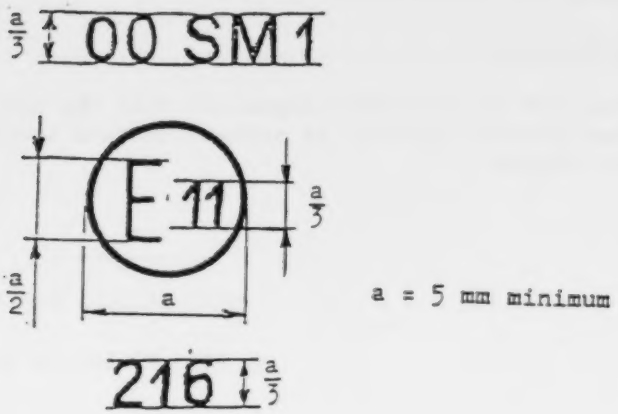
2/ Strike out what does not apply.

3/ For lamps with non-replaceable light sources indicate the number and the total wattage of the light sources.

Annex 3

ARRANGEMENTS OF APPROVAL MARKS

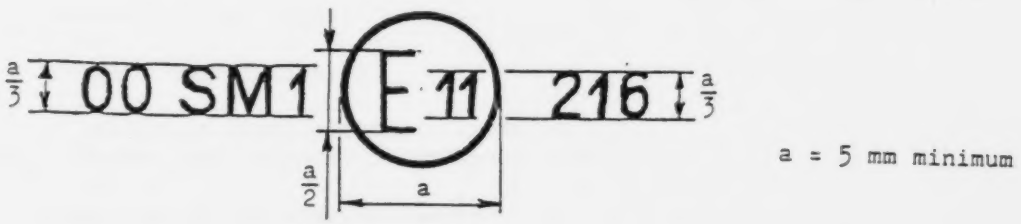
Example 1 (a)



The device bearing the approval mark shown above is a side-marker lamp, approved in the United Kingdom (E 11) pursuant to Regulation No. ... under the number 216.

Note: The number mentioned close to the symbol "SM1" indicates that the approval was granted in accordance with the requirements of this Regulation in its original form.

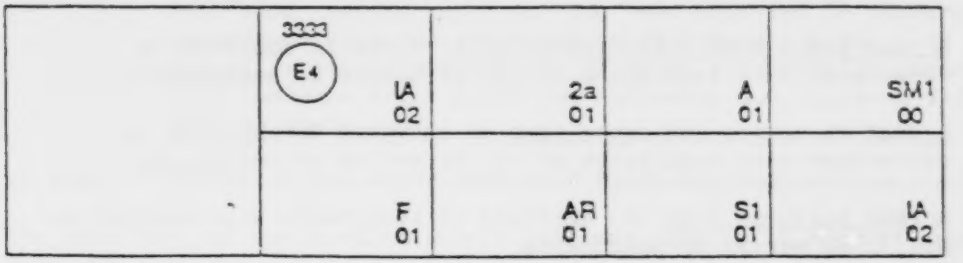
Example 1 (b)



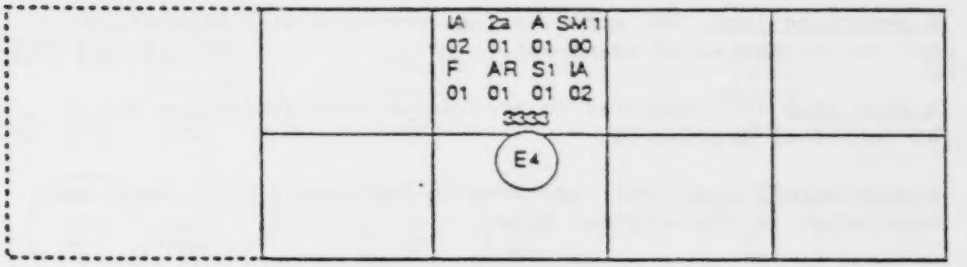
Example 2

Simplified marking for an assembly of several lamps
that are part of the same unit

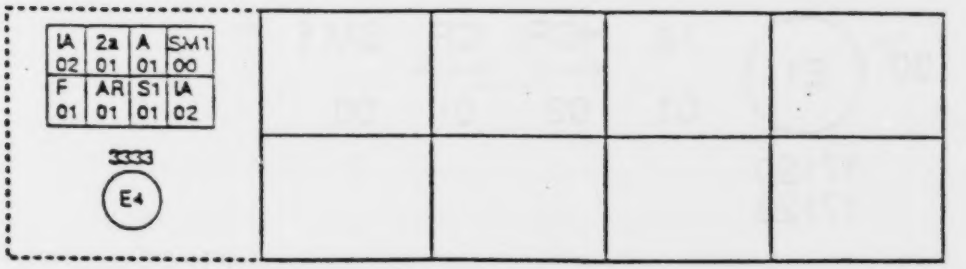
Model A



Model B



Model C



Note: The three examples of approval mark, models A, B and C represent three possible variants of marking of a light-signalling device when two or more lamps are part of the same unit of grouped, combined or reciprocally incorporated lamps.

The approval mark shows that the device was approved in the Netherlands (E4) under the number 3333 and comprises:

A rear and a side retro-reflector of class IA approved in accordance with Regulation No. 3, 02 series of amendments;

A rear direction indicator lamp of category 2a approved in accordance with Regulation No. 6, 01 series of amendments;

A rear position lamp (R) approved in accordance with Regulation No. 7, 01 series of amendments;

A rear fog lamp (F) approved in accordance with Regulation No. 38, 01 series of amendments;

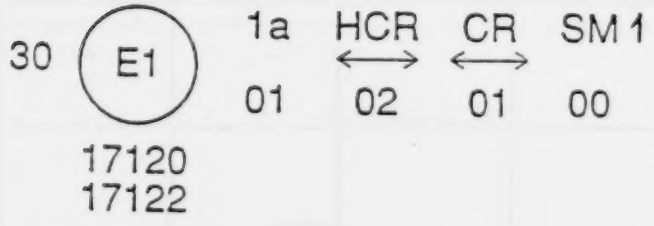
A reversing lamp (AR) approved in accordance with Regulation No. 23, 01 series of amendments;

A stop lamp (S1) approved in accordance with Regulation No. 7, 01 series of amendments;

A side-marker lamp (SM1) approved in conformity with the present Regulation in its original form.

Lamp reciprocally incorporated as grouped with a headlamp

Example 3



The above example corresponds to the marking of a lens intended to be used in different types of headlamps, namely:

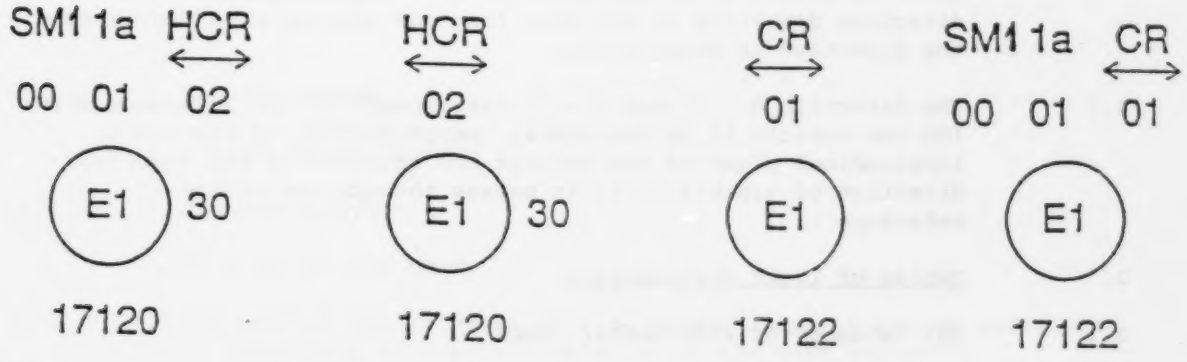
Either: a headlamp with a passing beam designed for right-hand and left-hand traffic and a driving beam with a maximum intensity comprised between 86,250 and 101,250 candelas, approved in Germany (E1) in accordance with the requirements of Regulation No. 8 as

amended by the 02 series of amendments; which is reciprocally incorporated with a front direction indicator approved in accordance with the 01 series of amendments to Regulation No. 6 and grouped with a side-marker lamp in accordance with this Regulation in the original form.

or: a headlamp with a passing beam designed for right-hand and left-hand traffic and a driving beam approved in Germany (E1) in accordance with the requirements of Regulation No. 1 as amended by the 01 series of amendments, which is reciprocally incorporated with the same front direction indicator and the same side-marker lamp as above.

or even: either of the above-mentioned headlamps approved as a single lamp.

The main body of the headlamp shall bear the only valid approval number, for instance:



Annex 4

PHOTOMETRIC MEASUREMENTS

1. Measurement methods

1.1 During photometric measurement stray reflections shall be avoided by appropriate marking.

1.2 In case the results of measurements should be challenged, measurements shall be carried out in such a way as to meet the following requirements:

1.2.1 The distance of measurement shall be such that the law of the inverse of the square of the distance is applicable;

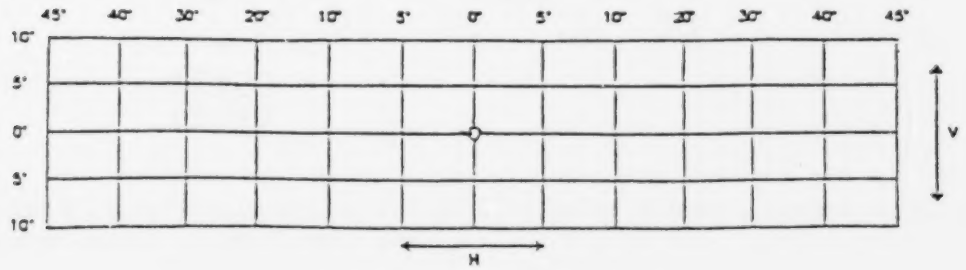
1.2.2 The measuring equipment shall be such that the angular aperture of the receiver viewed from the reference centre of the lamp is comprised between 10 minutes and 1 degree;

1.2.3 The intensity requirement for a particular direction of observation shall be deemed to be satisfied if that requirement is met in a direction deviating by not more than one-quarter of a degree from the direction of observation.

1.3 The direction H = 0° and V = 0° corresponds to the reference axis. (On the vehicle it is horizontal, perpendicular to the median longitudinal plane of the vehicle and oriented in the required direction of visibility.) It passes through the centre of reference.

2. Tables of light distribution

2.1 SM1 category of side-marker lamps



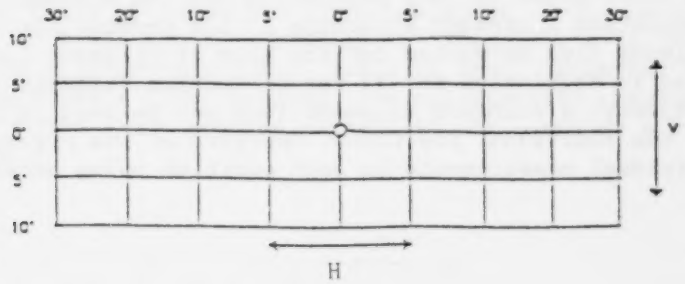
2.1.1 Minimum values:

0.6 cd at any point other than the reference axis, at which it shall be 4.0 cd.

2.1.2 Maximum values:

25.0 cd at any point

2.2 SM2 category of side-marker lamps



2.2.1 Minimum values:

0.6 cd, at any point

2.2.2 Maximum values:

25.0 cd, at any point

2.3 For SM1 and SM2 category of side-marker lamps it may be sufficient to check only five points selected by the test authority.

2.4 Within the field of light distribution shown above as a grid the light pattern should be substantially uniform, i.e. the light intensity in every direction within a part of the field formed by the grid lines shall meet at least the lowest minimum value applicable to the respective grid lines.

3. Photometric measurement of lamps equipped with several light sources.

The photometric performance shall be checked:

3.1 For non-replaceable (fixed) filament lamps or other light sources:

at the voltage prescribed by the manufacturer; the test laboratory may require from the manufacturer the special power supply needed to supply such lamps;

3.2 For replaceable filament lamps:

When equipped with mass production filament lamps at 13.5 V or 28 V, the luminous intensity values produced shall lie between the maximum limit given in this Regulation and the minimum limit of this Regulation increased according to the permissible deviation of the luminous flux permitted for the type of filament lamp chosen, as stated in Regulation No. 37 for production filament lamps; alternatively, a standard filament lamp may be used in turn, in each of the individual positions, operated at its reference flux, the individual measurements in each position being added together.

Annex 5

COLOUR OF LIGHT EMITTED: LIGHTS FOR TRICHROMATIC COORDINATES

Amber:	limit towards yellow:	$y \leq 0.429$
	limit towards red:	$y \geq 0.398$
	limit towards white:	$z \leq 0.007$
Red:	limit towards yellow:	$y \leq 0.335$
	limit towards purple:	$z \leq 0.008$

For checking these colorimetric characteristics, a source of light at a colour temperature of 2,856 K, corresponding to illuminant A of the International Commission on Illumination (CIE), shall be used. However, for lamps equipped with non-replaceable light sources, the colorimetric characteristics should be verified with the light sources present in the lamps at a voltage of 6.75 V, 13.5 V or 28.0 V.